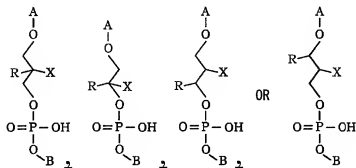


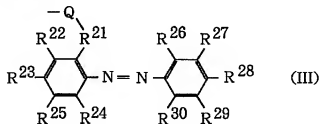
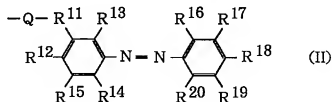
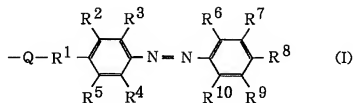
# AMENDMENTS TO THE CLAIMS

## 1. (Cancelled)

2. (Currently Amended) The A DNA enzyme according to Claim 1, represented by the following Formula:



[[()]]in the Formulae, A represents a catalytically active loop end, B represents a nucleotide or an oligonucleotide, X represents ~~any one the~~ organic group selected from the group consisting of azobenzene, azobenzene derivatives, spiropyran, and stilbene, and derivatives thereof, and R represents a hydrogen atom or an alkyl group having the a carbon number of 1 to 4[()], wherein the azobenzene derivative is represented by the following Formulae (I), (II) or (III):



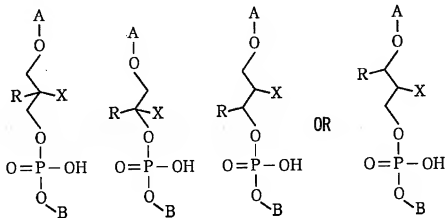
in the Formulae (I)-(III),  $R^1$ ,  $R^{11}$ , and  $R^{21}$  independently represent (a) a direct bond, (b) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkylene group having a carbon number of 1 to 20, or (c) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenylene group having a carbon number of 2 to 20; Q represents (a) a direct bond, (b) an oxygen atom, (c) a  $-(CH_2)_n-NH-CO-$  group, or (d) a  $-(CH_2)_n-CO-NH-$  group, wherein  $n = 1$  to  $5$ ; and  $R^2$  to  $R^{10}$ ,  $R^{12}$  to  $R^{20}$ , and  $R^{22}$  to  $R^{30}$  independently represent (a) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having a carbon number of 1 to 20, (b) an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having a carbon number of 2 to 20, (c) a hydroxyl group, (d) a halogen atom, (e) an amino group, (f) a nitro group, or (g) a carboxyl group; and at least one of  $R^2$  to  $R^{10}$ , at least one of  $R^{12}$  to  $R^{20}$ , and at least one of  $R^{22}$  to  $R^{30}$  is substituted.

3. (Cancelled)

4. (Withdrawn) A method for controlling the activity of a DNA enzyme, characterized by comprising the step of applying light at specific wavelengths to the DNA enzyme including a nucleotide residue, to which any one organic group selected from the group consisting of azobenzene, spiropyran, stilbene, and derivatives thereof is bonded, and thereby, effecting reversible structural isomerization between a planar structure and a nonplanar structure of the organic group, so as to control the RNA cleavage activity of the DNA enzyme.

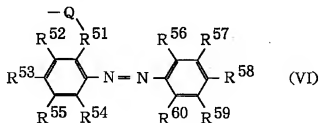
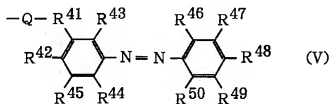
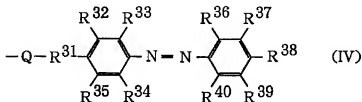
5. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 4, wherein the introduction position of the nucleotide residue is a 3'-side end of a catalytically active loop.

6. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 5, wherein the DNA enzyme is represented by the following Formula:



(in Formulae, A represents a catalytically active loop end, B represents nucleotide or oligonucleotide, X represents any one organic group selected from the group consisting of azobenzene, spiropyran, stilbene, and derivatives thereof, and R represents a hydrogen atom or an alkyl group having the carbon number of 1 to 4).

7. (Withdrawn) The method for controlling the activity of a DNA enzyme according to Claim 6, wherein X is represented by the following Formula (IV), (V), or (VI):



(in Formulae,  $\text{R}^{31}$ ,  $\text{R}^{41}$ , and  $\text{R}^{51}$  represent independently a direct bond; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkylene group having the carbon number of 1 to 20; or an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenylene group having the carbon number of 2 to 20, Q represents a direct bond, an oxygen atom, a  $-(\text{CH}_2)_n\text{-NH-CO-}$  group, or a  $-(\text{CH}_2)_n\text{-CO-NH-}$  group, where  $n = 1$  to 5,  $\text{R}^{32}$  to  $\text{R}^{37}$ ,  $\text{R}^{39}$ ,  $\text{R}^{40}$ ,  $\text{R}^{42}$  to  $\text{R}^{47}$ ,  $\text{R}^{49}$ ,  $\text{R}^{50}$ ,  $\text{R}^{52}$  to  $\text{R}^{57}$ ,  $\text{R}^{59}$ , and  $\text{R}^{60}$  represent independently an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having the carbon number of 1 to 20; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having the carbon number of 2 to 20; a hydroxyl group; a halogen atom; an amino group; a nitro group; or a

carboxyl group, and  $R^{38}$ ,  $R^{48}$ , and  $R^{58}$  represent independently an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkyl group or alkoxy group having the carbon number of 1 to 20; an unsubstituted or a halogen atom-, hydroxyl-, amino-, nitro-, or carboxyl-substituted alkenyl group or alkynyl group having the carbon number of 2 to 20; a hydroxyl group; or a halogen atom).

8. (New) The DNA enzyme according to Claim 2, wherein Q is a  $-(CH_2)_n-NH-CO-$  group and  $R^1$ ,  $R^{11}$ , and  $R^{21}$  are all direct bonds.

9. (New) The DNA enzyme according to Claim 2, wherein Q is a  $-(CH_2)_n-NH-CO-$  group,  $R^8$ ,  $R^{18}$ , and  $R^{28}$  are all amino groups, and  $R^1$ ,  $R^{11}$ , and  $R^{21}$  are all direct bonds.